Men's Health
&
Prostate Cancer

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National Men's Health Week

- June 11-17, 2007

  (Father's day was on June 17th)

- Theme – Increase awareness of men's health issues and promote early detection and health prevention

Overview

- Key facts of Men's Health
- Prostate Cancer
- Trends in Incidence and Mortality
- Key issues of Screening and Early Treatment
- Premature deaths due to Prostate cancer

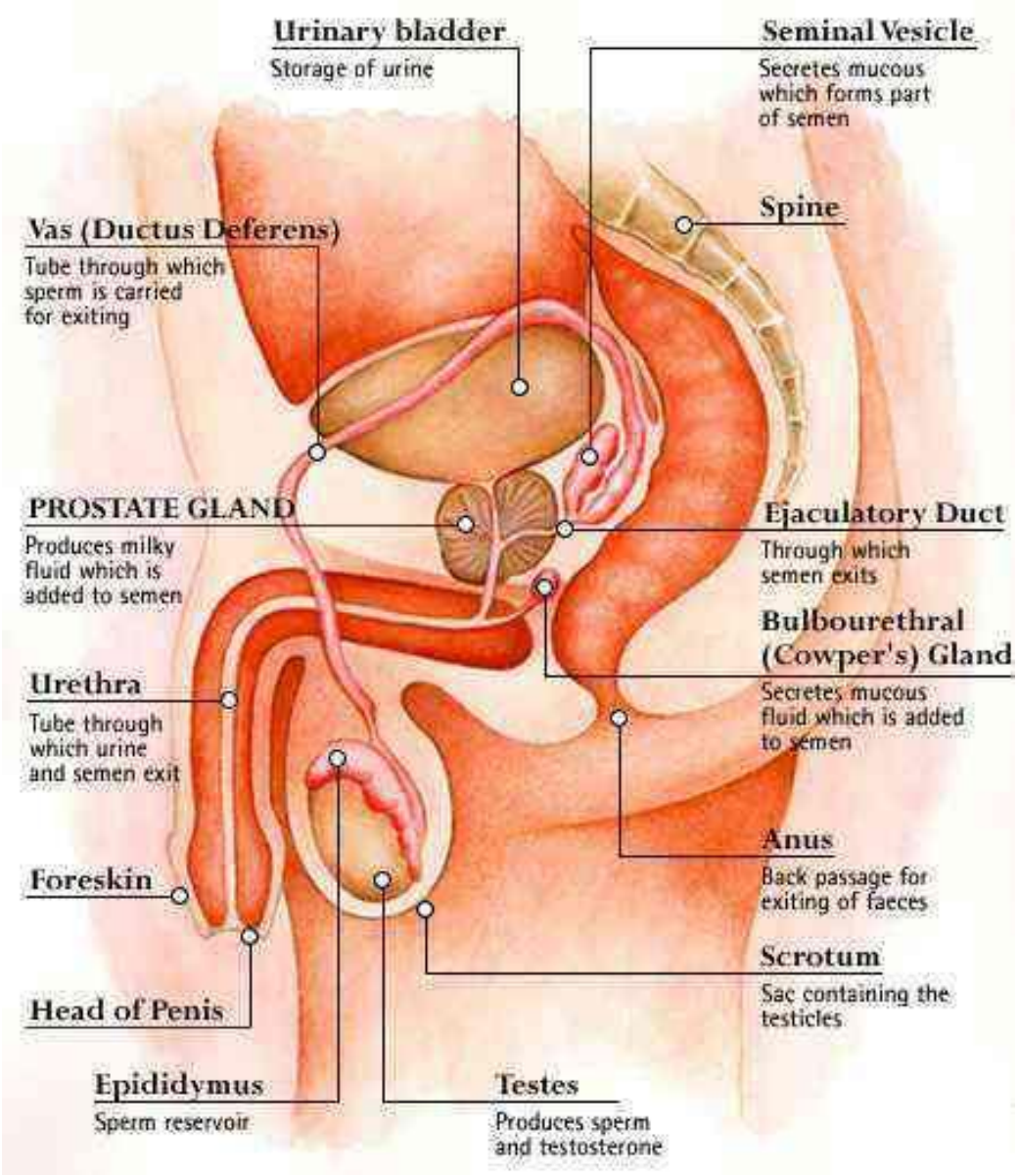
Key facts of Men's Health

- Life expectancy for men are lower than women
- Men tend to smoke more than women
- Men tend to drink more than women
- Men don't seek medical help as often as women
- Some men define themselves by their work, which can add to stress

Key facts of Men's Health

- Men are four times more likely to die of suicide than women
- Nearly two-thirds of injured or ill-workers were men
- There are also health conditions that affect only men…

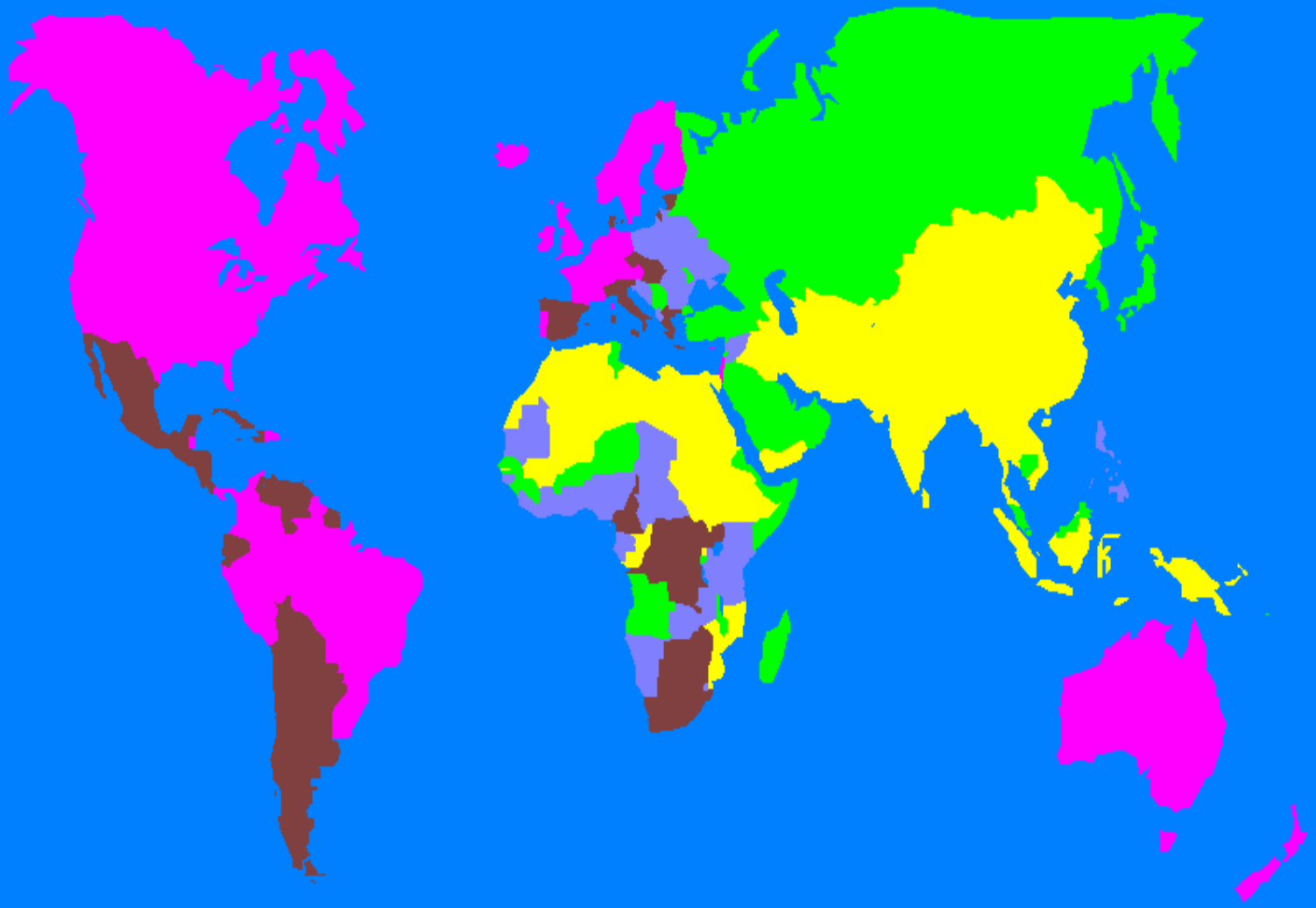
The Prostate Gland



Risk Factors

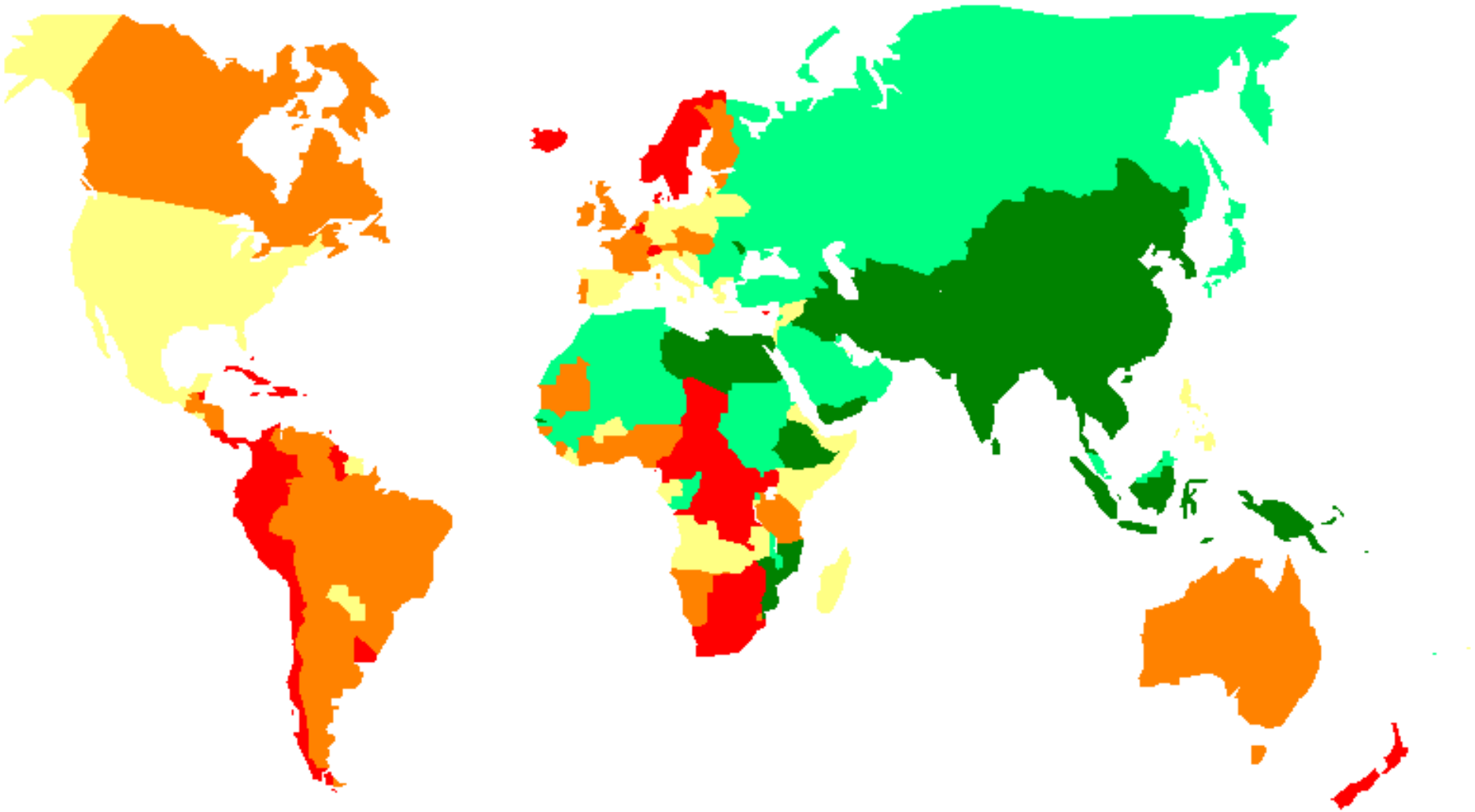
- Male
- Age
- Race
  - Higher rate in African-American, lower in Asian
- Family history (1st degree relatives)
- Diet?

Prostate Cancer Age-standardized Incidence, World Population, 2002



GLOBOCAN 2002

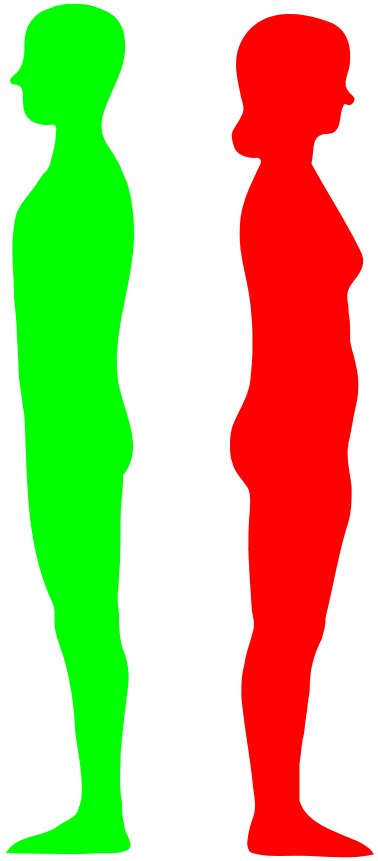
Prostate
Age-Standardized mortality rate per 100,000



GLOBOCAN 2002, IARC

2007 Estimated US Cancer Cases*

Men 766,860		Women 678,060
Prostate	**29%**	
Lung & bronchus	15%	15% Lung & bronchus
Colon & rectum	10%	11% Colon & rectum
Urinary bladder	7%	6% Uterine corpus
Non-Hodgkin lymphoma	4%	4% Non-Hodgkin lymphoma
		26% Breast

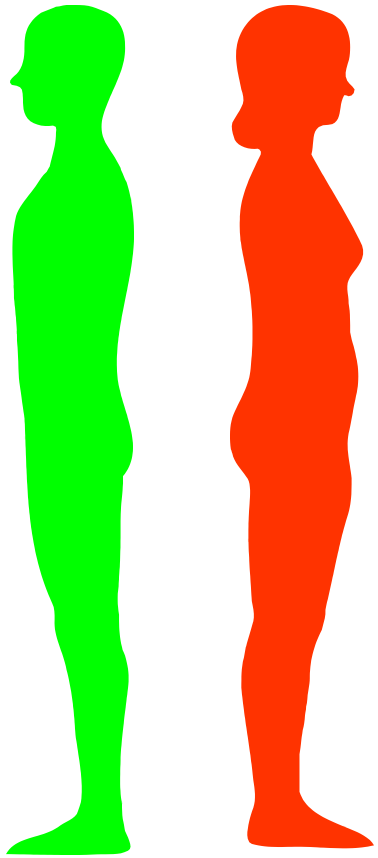


*Excludes basal and squamous cell skin cancers and in situ carcinomas except urinary bladder.

ACS, 2007

2007 Estimated US Cancer Deaths*

Men 289,550		Women 270,100
Lung & bronchus	31%	26% Lung & bronchus
Prostate	**9%**	15% Breast
Colon & rectum	9%	10% Colon & rectum
Pancreas	6%	6% Pancreas
Leukemia	4%	6% Ovary



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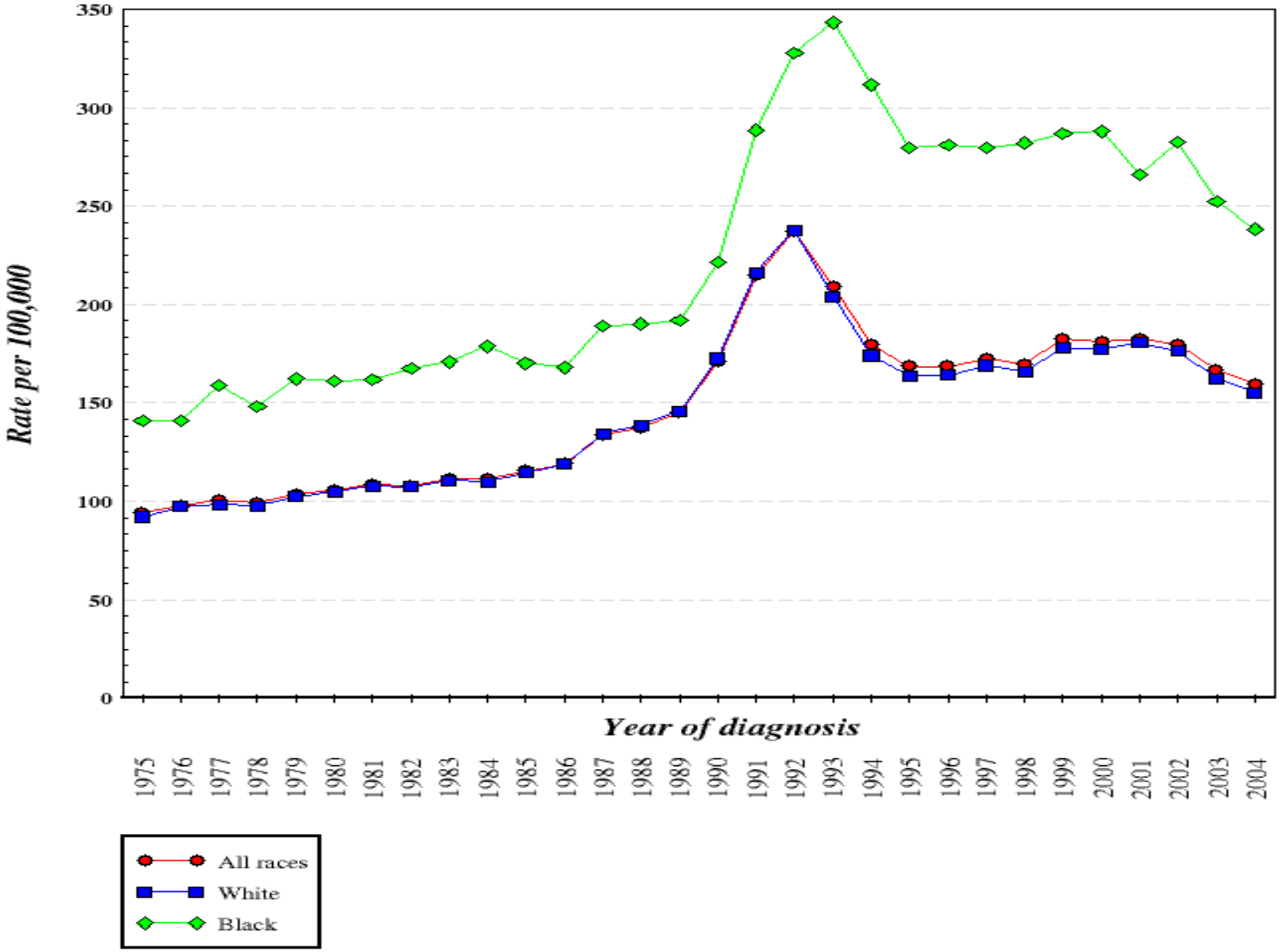
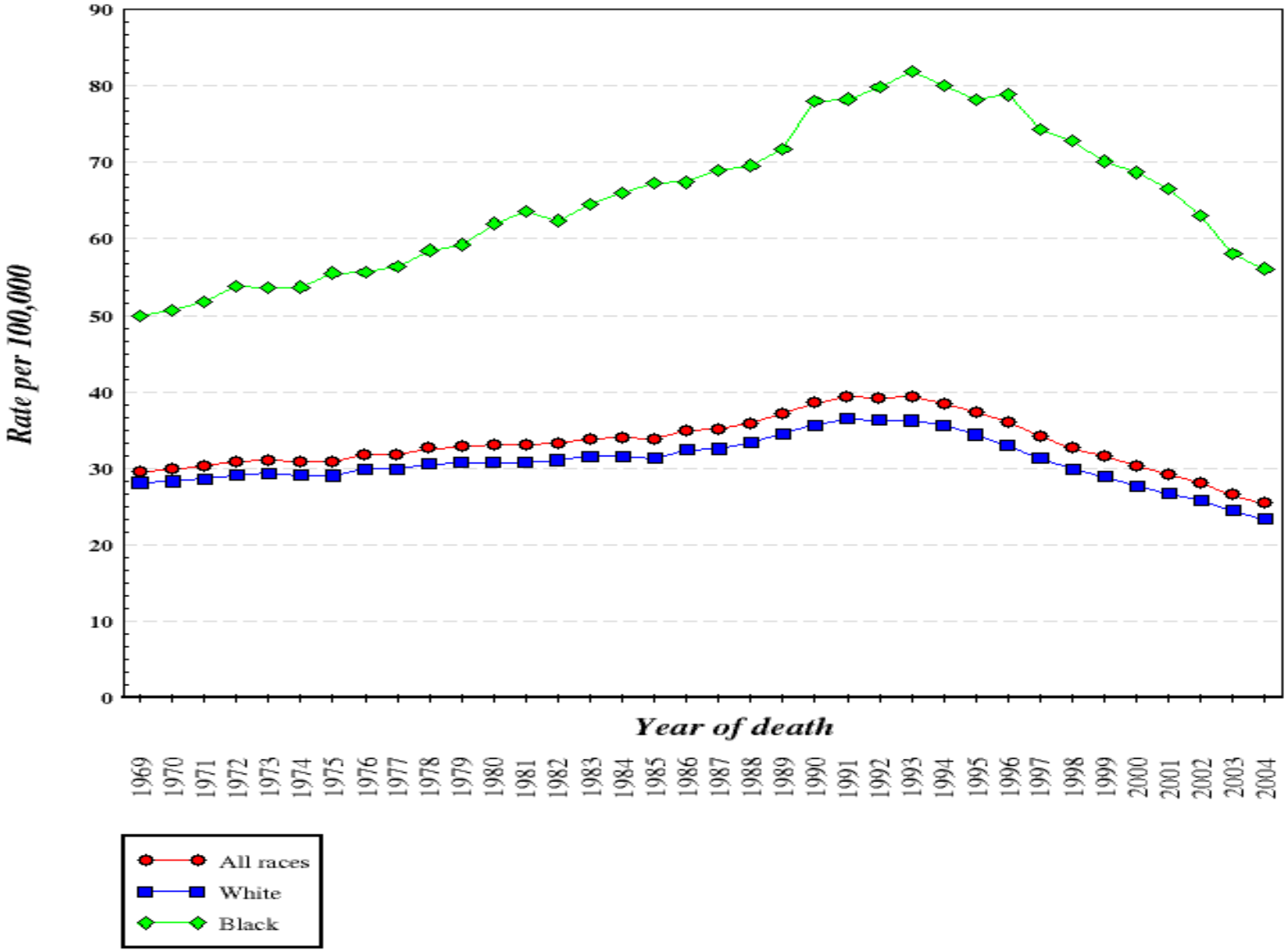
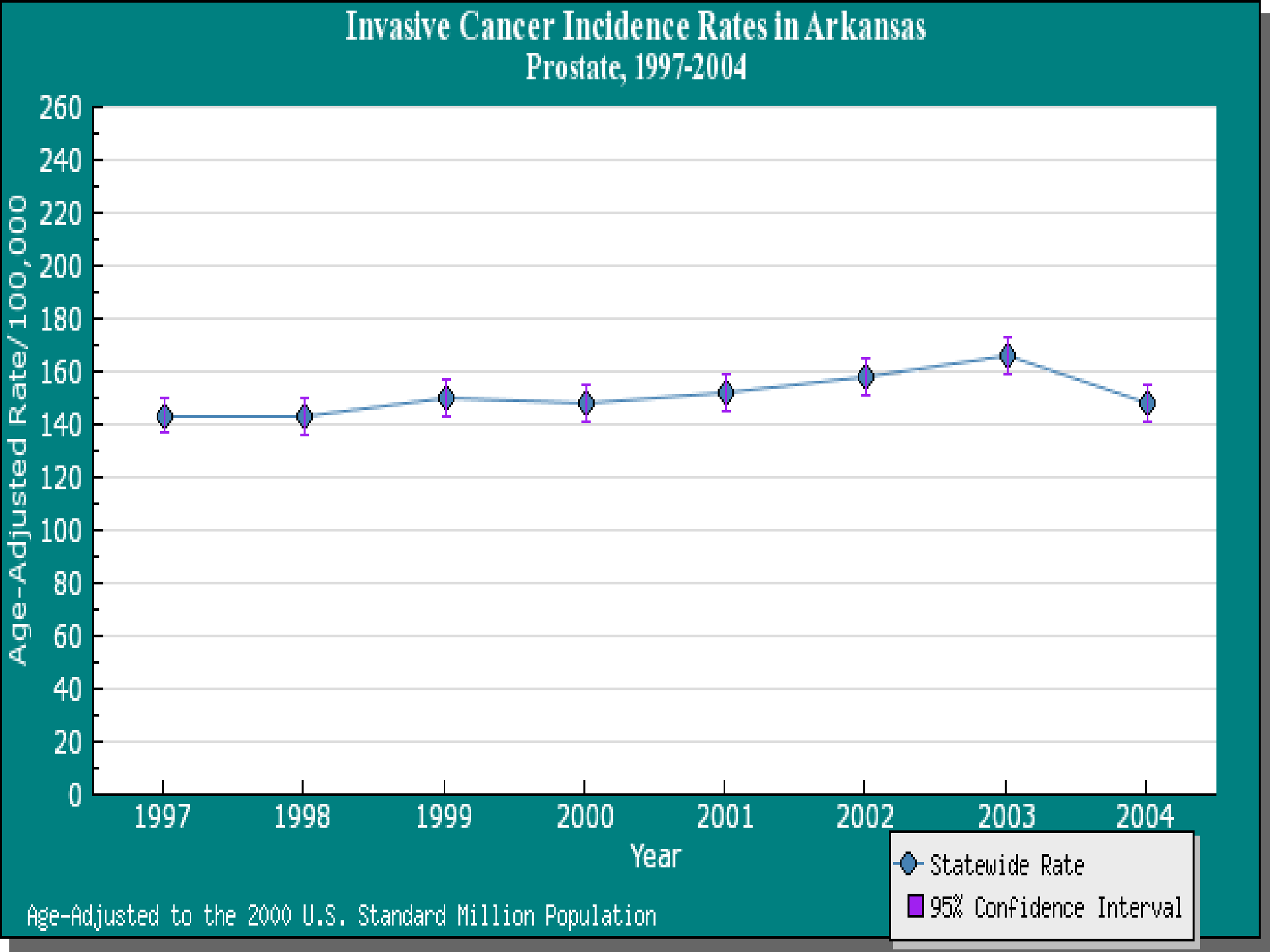
ACS, 2007

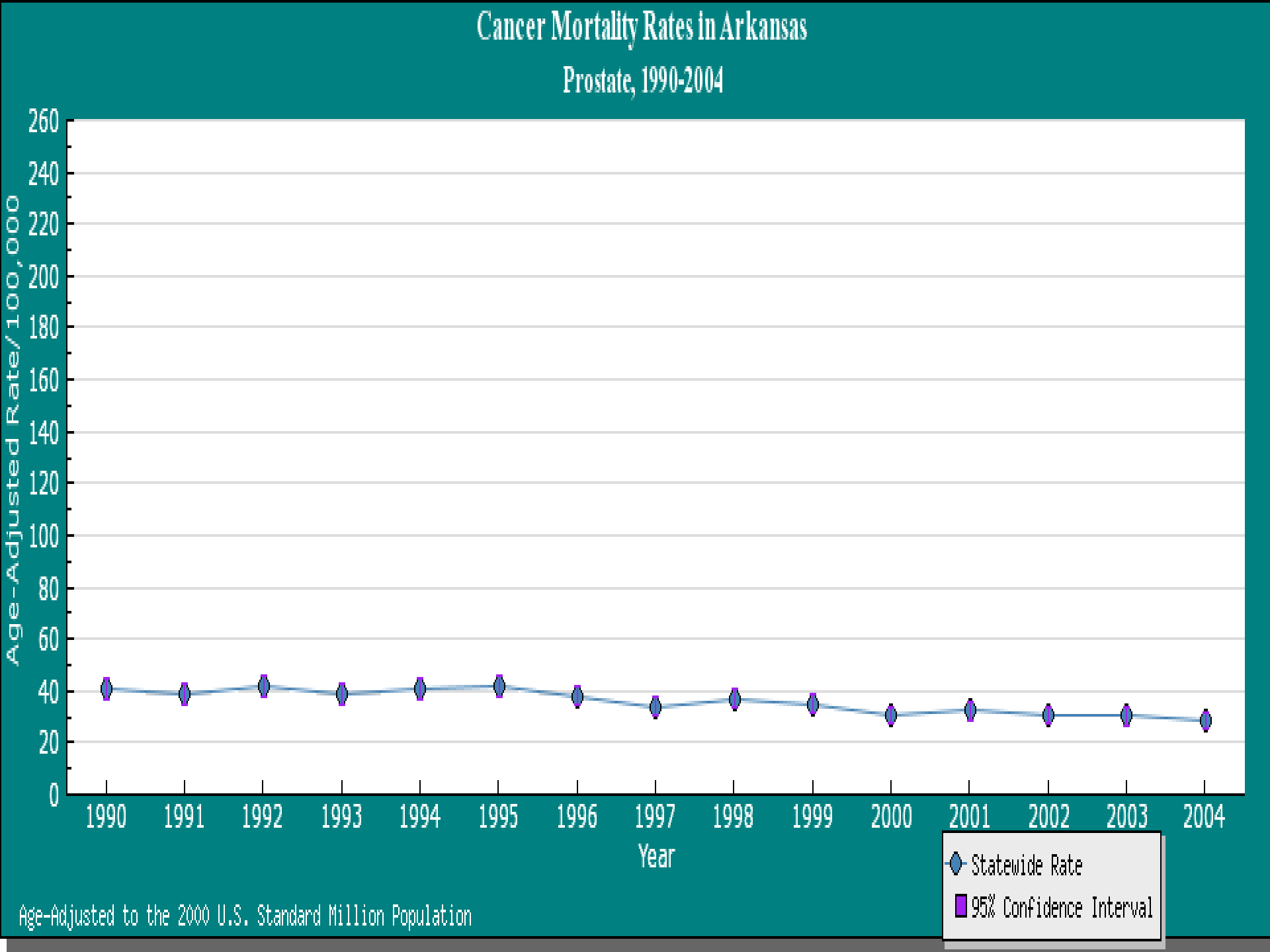
Prostate Cancer Incidence rates in the US, 1975-2004, SEER 9 data



Prostate Cancer Mortality rates in the US, 1969-2004,




Invasive Cancer Incidence Rates in Arkansas
Prostate, 1997-2004
Age-Adjusted Rate/100,000
260
240
220
200
180
160
140
120
100
80
60
40
20
0
1997
1998
1999
2000
2001
2002
2003
2004
Year
Statewide Rate
95% Confidence Interval
Age-Adjusted to the 2000 U.S. Standard Million Population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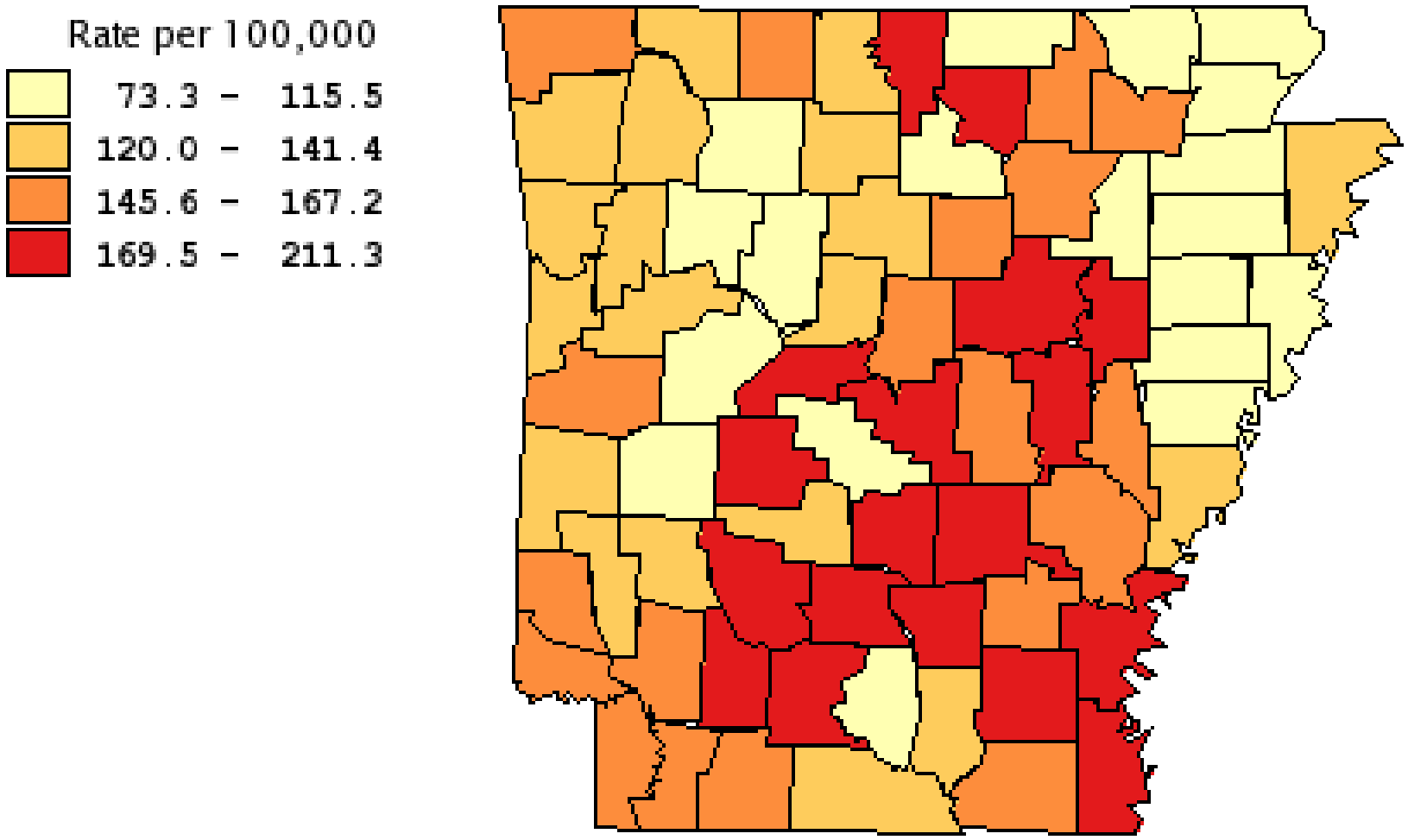
Age-Adjusted to the 2000 U.S. Standard Million Population

Age-Adjusted Invasive Cancer Incidence Rates by County in Arkansas
Prostate, 1997-2004

Total Male Population 1997-2004

Age-Adjusted to the 2000 U.S. Standard Million Population

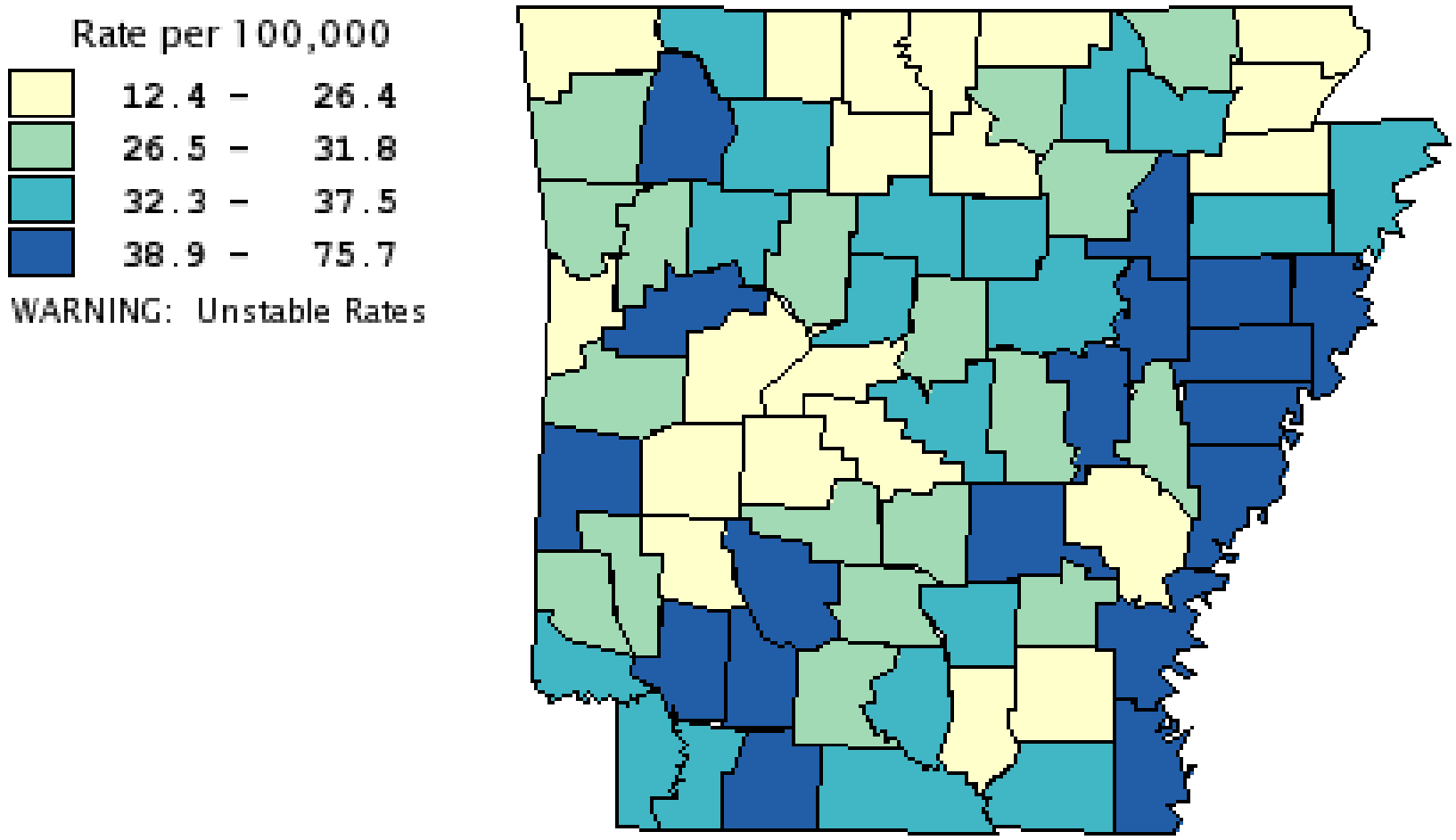


Age-Adjusted Cancer Mortality Rates by County in Arkansas

Prostate, 1999-2004

Total Male Population 1999-2004

Age-Adjusted to the 2000 U.S. Standard Million Population



Screening

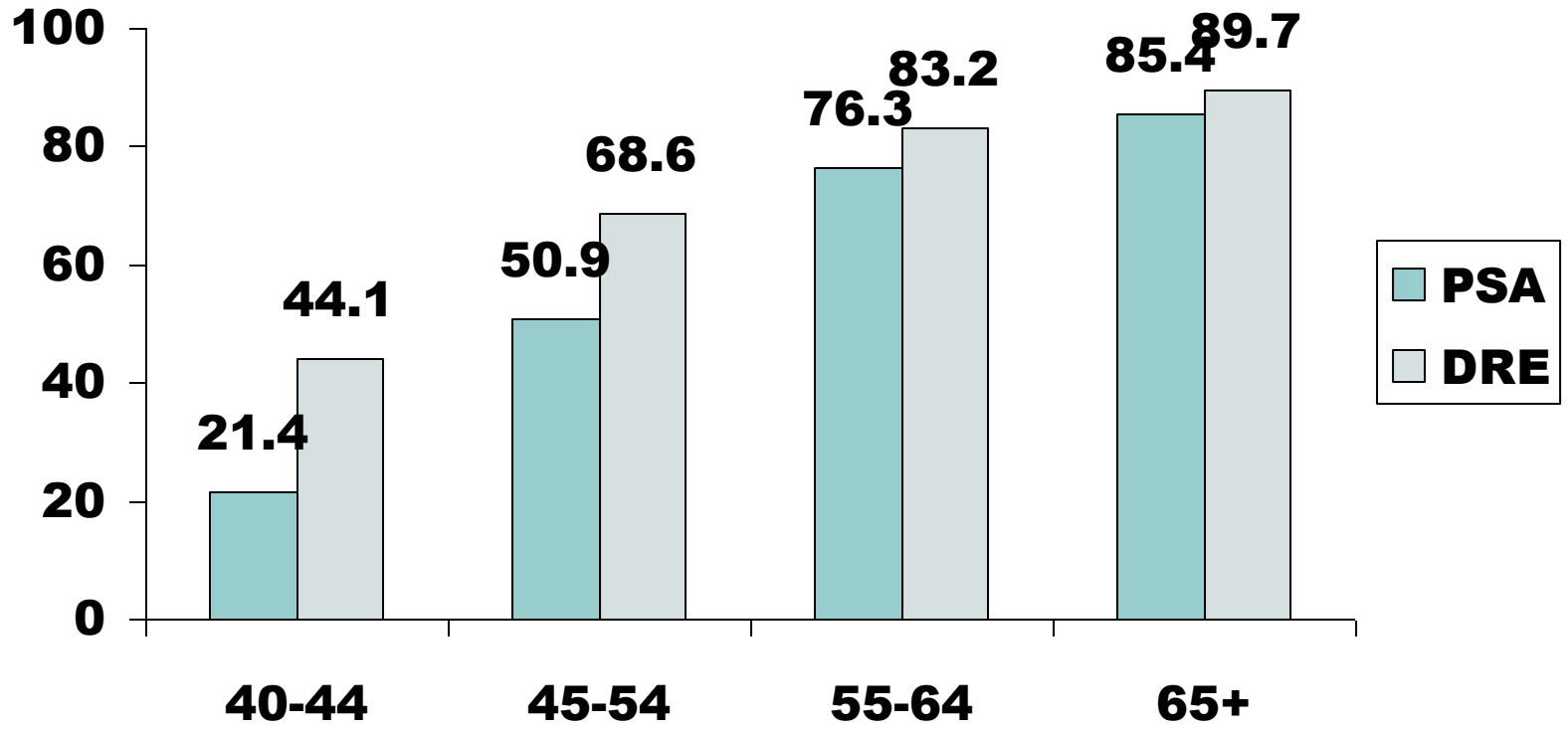
- **PSA levels and DRE**
- **Free PSA**
- **PSA Velocity**

Screening

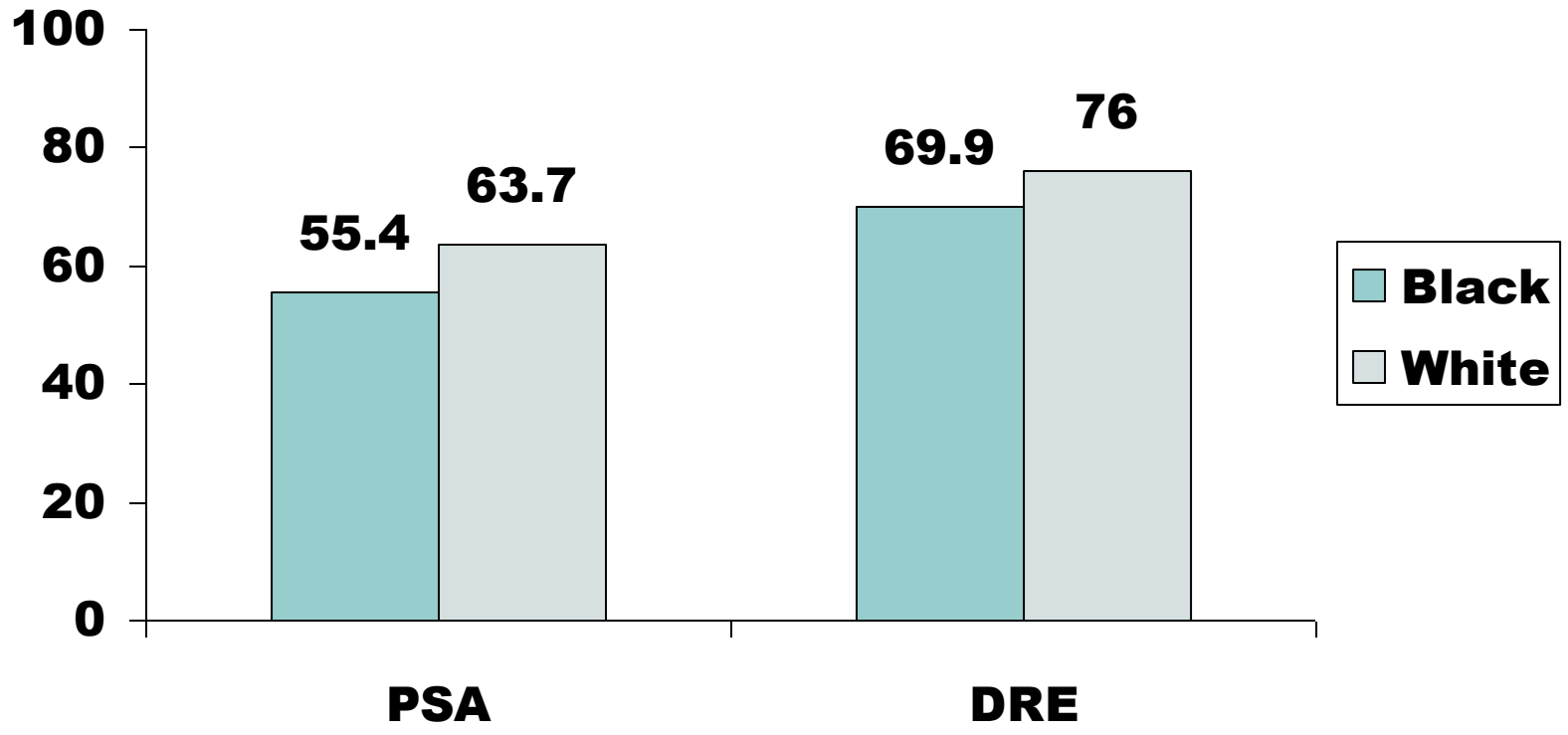
- AUA recommendation:
  - Annual PSA, DRE Caucasion > 50 y.o.
  - Annual PSA Blacks > 40 OR men w/+ FH
- ACS:

  Annual tests men > 50 y.o. IF 10 years of life expected (earlier Black men, + FH)
- American College of Preventive Medicine:
  - Recommends against routine screening tests (PSA/DRE)
  - Men over 50 w/10 years life should be told about benefits & harms of screening

Prostate Cancer screening in Arkansas, BRFSS 2006



Prostate Cancer screening in Arkansas, BRFSS 2006



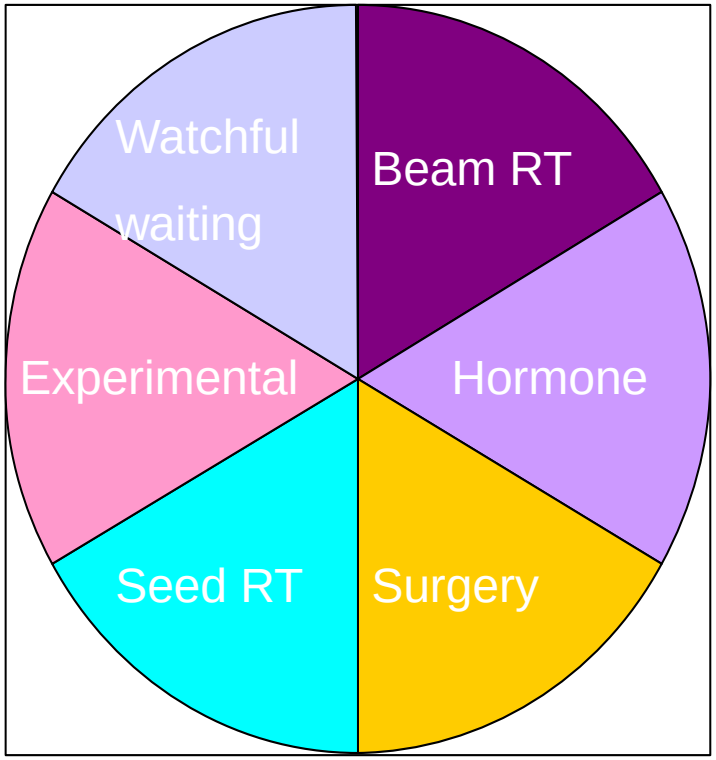
Diagnosis

- **Transrectal ultrasound**
- **Cystoscopy**
- **Transrectal biopsy**

Treatment

Based on:

- **Age**
- **Life expectancy**
- **Overall health status**
- **Growth and spread of tumor**



Key Issues of Screening and Early Treatment

- Does screening extend men's lives (are there benefits)?
- Does screening lead to health problems (are there harms)?
- Do the benefits outweigh the harms?

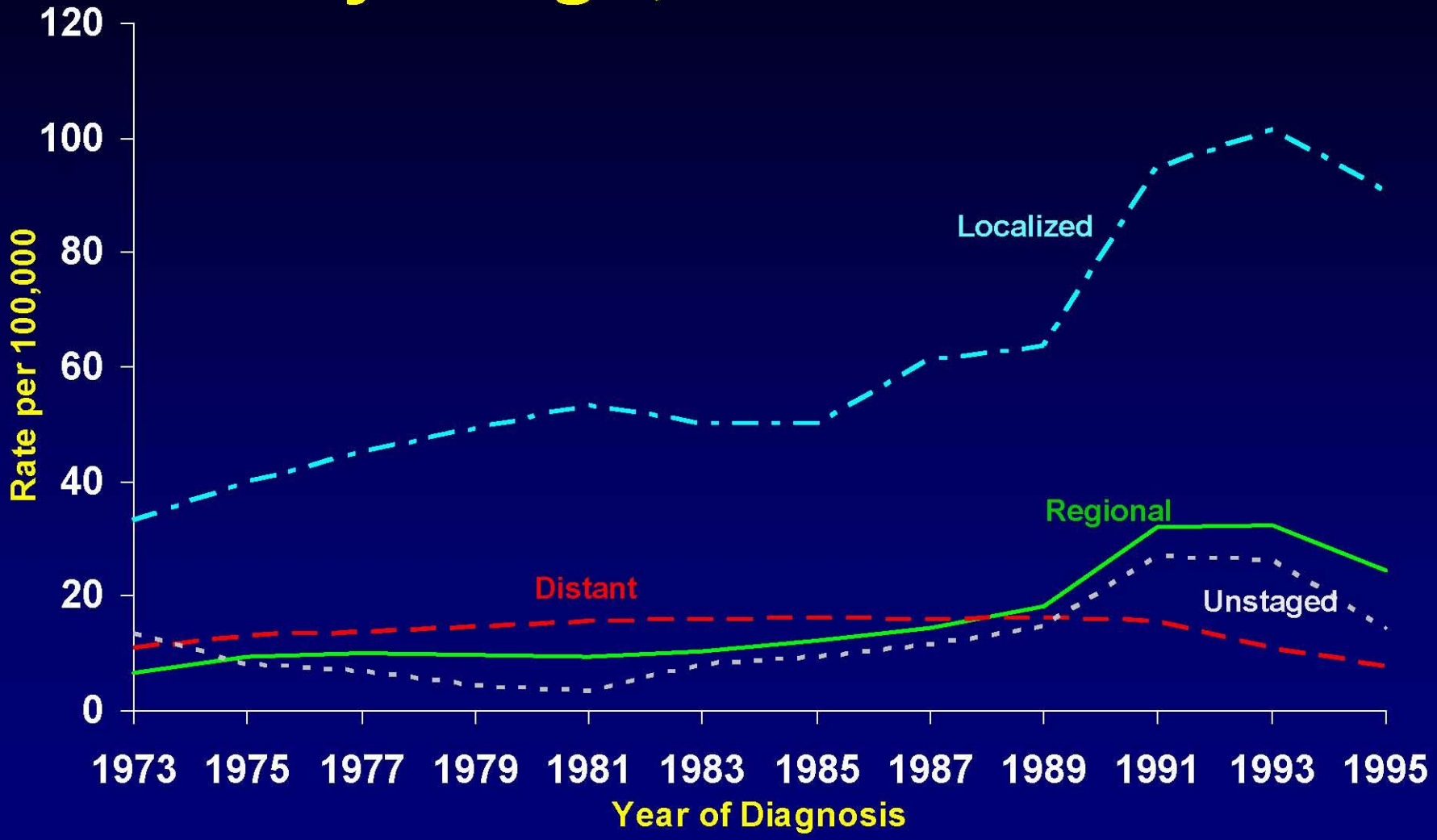
Source for next few slides: www.cdc.gov

What Are the Potential Benefits of Screening?

Three issues to consider:

- Does PSA testing lead to earlier detection?
- Does earlier treatment help men live longer?
- What happens to mortality rates as screening rates increase?

Prostate Cancer Incidence Rates by Stage, 1973–1995



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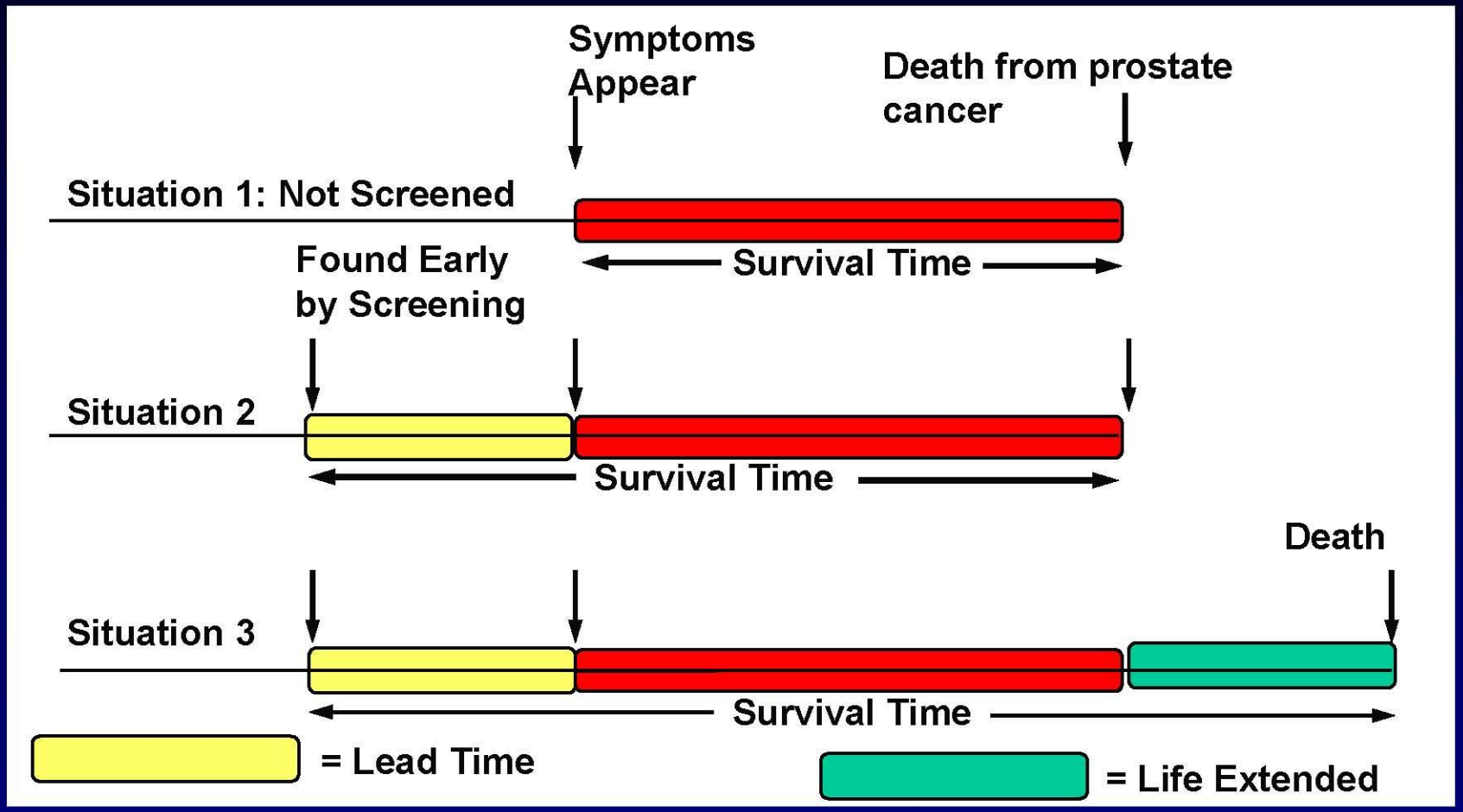
Finding Prostate Cancer Earlier Is Not Enough



Can We Treat Early Stage Prostate Cancer effectively?

Table 1. Ten-year cancer-specific survival (with 95% confidence intervals) for men with prostate cancer reported to the US SEER program, by degree of differentiation of tumor and treatment administered (intention to treat analysis).[a]

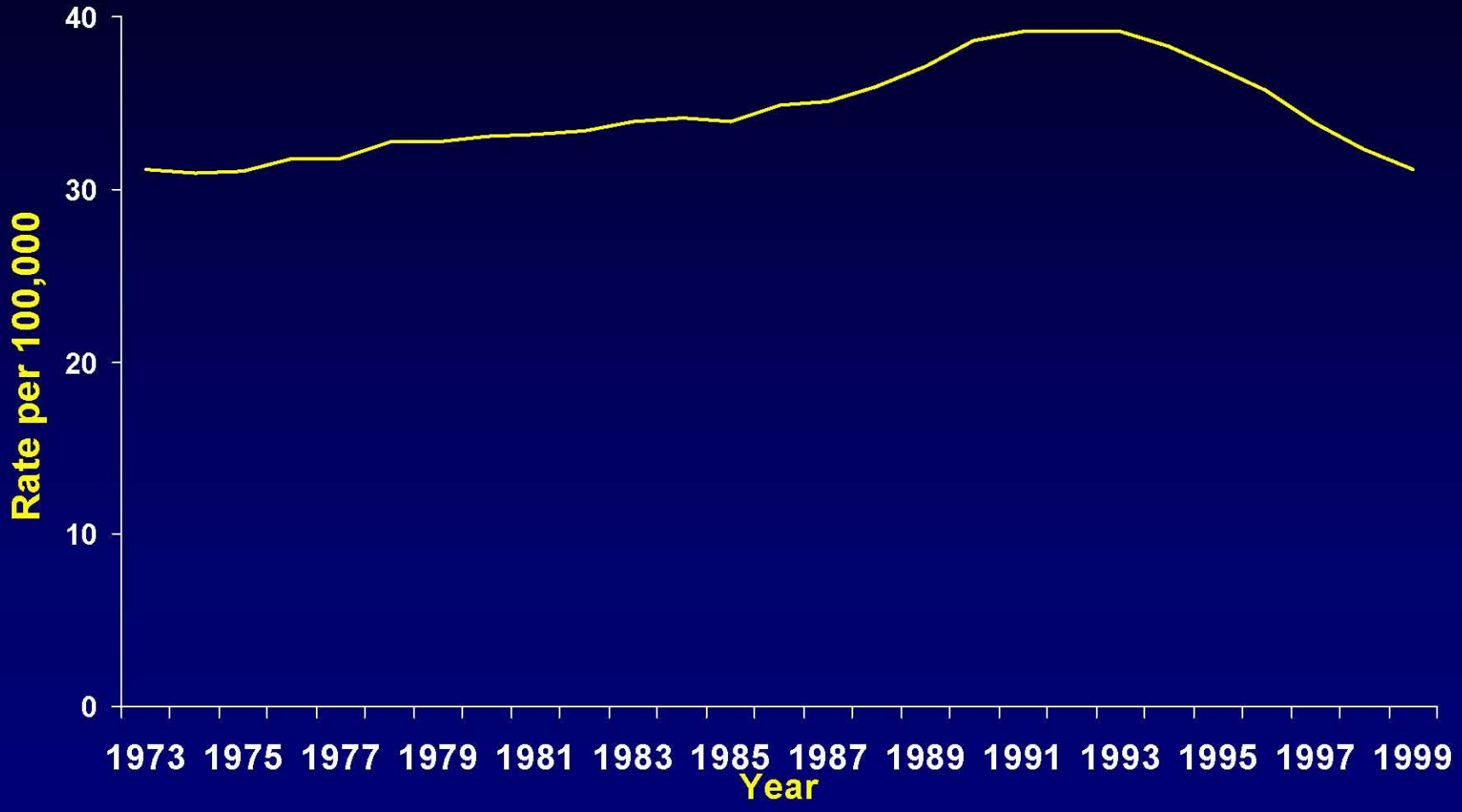
Ten-year cancer-tumor differentiation	Specific survival
Well	
Prostatectomy	94% (91%–95%)
Radiation	90% (87%–92%)
Conservative	93% (91%–94%)
Moderate	
Prostatectomy	87% (85%–89%)
Radiation	76% (72%–79%)
Conservative	77% (74%–80%)
Poor	
Prostatectomy	67% (62%-71%)
Radiation	53% (47%–58%)
Conservative	45% (40%–51%)

[a] *Source:* Lu-Yao GL, Yao SL. Population-based study of long-term survival in patients with clinically localised prostate cancer Lancet 1997; 349: 906–10 (used with permission), © The Lancet Ltd.

Can We Treat Early-Stage Prostate Cancer Effectively?

- After treatment for early-stage prostate cancer, men have excellent survival.
- Men with early-stage prostate cancer who choose watchful waiting also have excellent survival.
  - A study of 800 men who chose watchful waiting found the 10-year disease-specific survival to be 87%.

What Happened to U.S. Prostate Cancer Mortality Rates as Screening Rates Increased?



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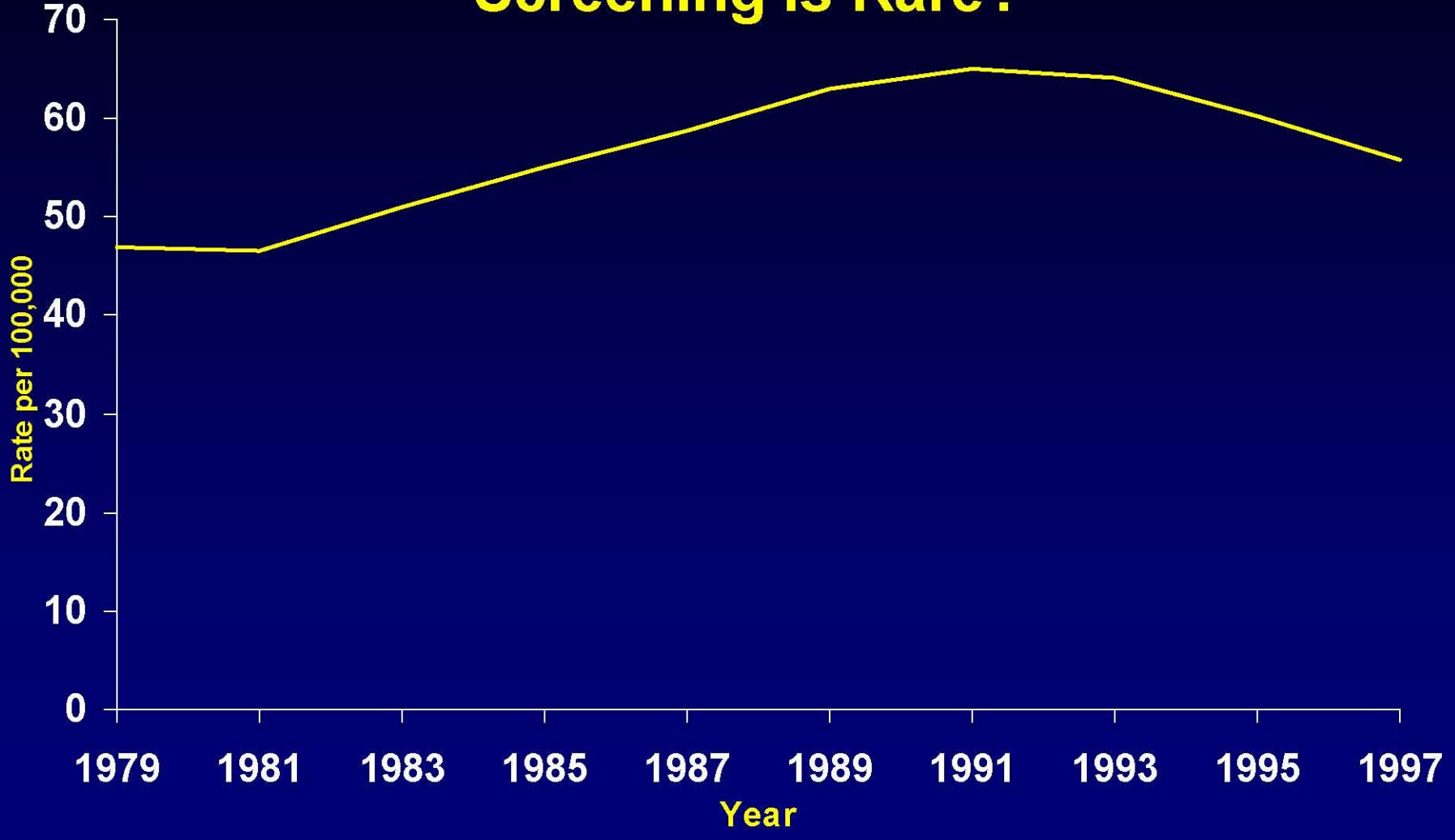
What Happens to Prostate Cancer Mortality Rates in the U.K., where PSA Screening Is Rare?



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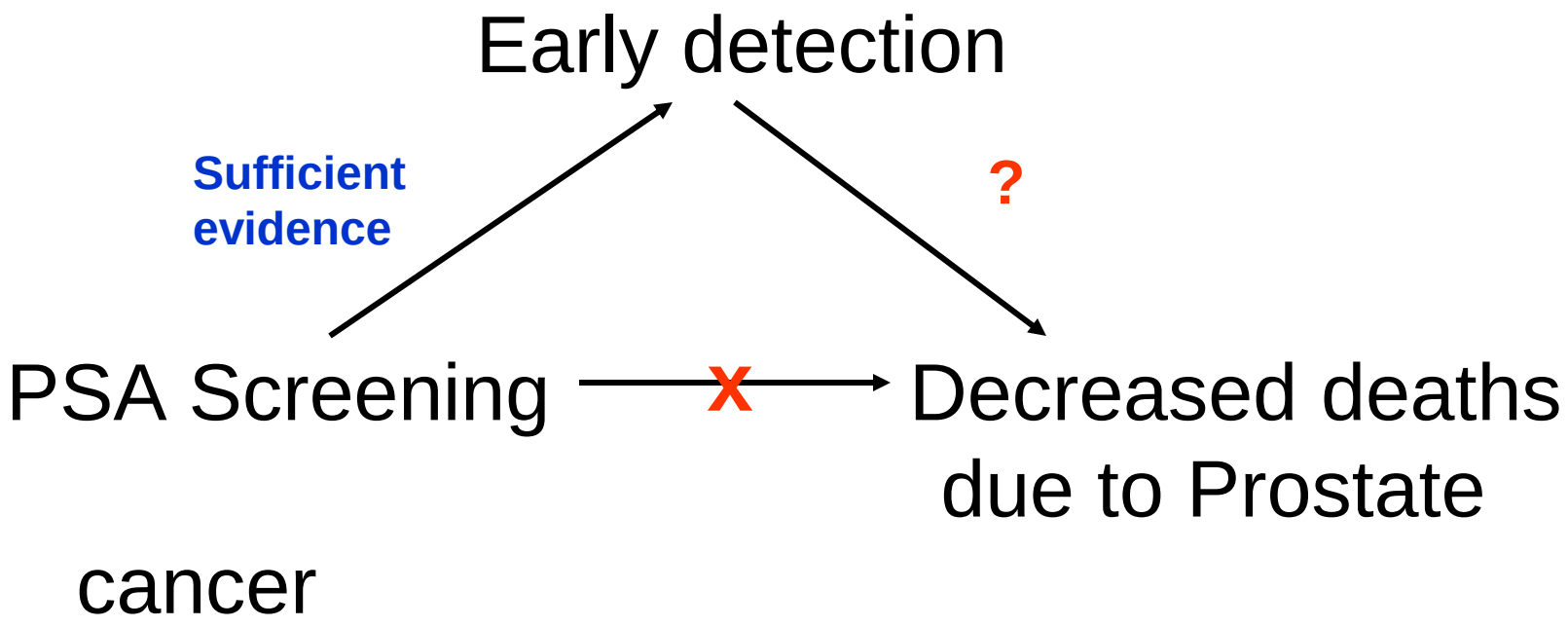
Do We Extend Men's Lives by Screening for Prostate Cancer?



Are There Harms From Screening and Early Treatment?

Three issues to consider:

- False-positive screening tests.
- Overdiagnosis (men who do not benefit from diagnosis).
- Side effects of treatment.

Harms: False Positives

Of 100 unscreened men in each group

Age (in years)	# With PSA >4.0	# With Cancer	# False Positives
50s	5	1–2	3–4
60s	15	3–5	10–12
70s	27	9	18

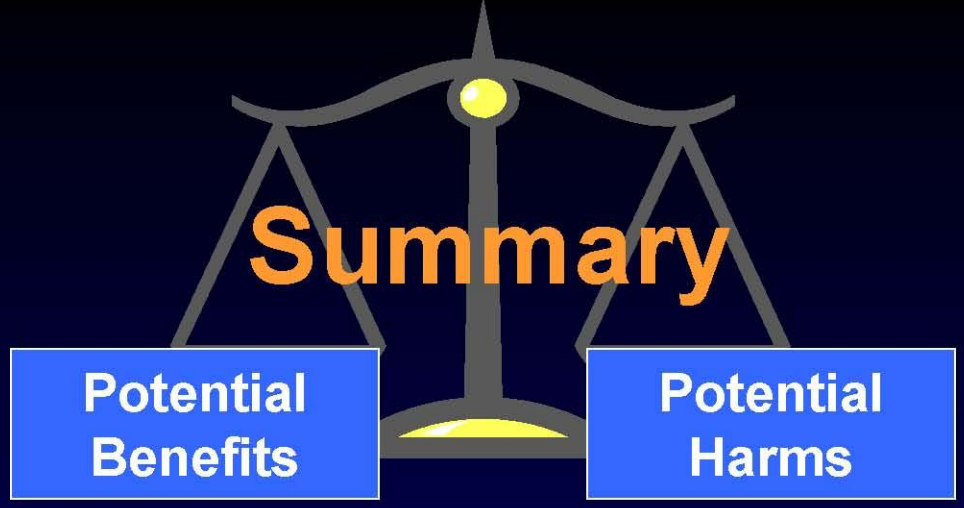
Overdiagnosis

- Detection by screening of cancers that would never have become clinically apparent.
- Detection of cancers in patients whose lives are not extended by screening and treatment.
- Overdiagnosis leads to unnecessary treatments and their side effects.

Side Effects of Treatment

Treatment	Side Effect	Frequency
Radical prostatectomy	• Erectile dysfunction • Urinary incontinence	20–70% 15–50%
External beam radiation therapy	• Erectile dysfunction • Urinary incontinence	20–45% 2–16%
Androgen deprivation therapy	• Sexual dysfunction • Hot flashes	20–70% 50–60%
Watchful waiting	• Erectile dysfunction	30%

Summary



- PSA screening detects cancers earlier.
- Treating PSA-detected cancers may be effective but we are uncertain.
- PSA may contribute to the declining death rate but we are uncertain.

- False positives are common.
- Overdiagnosis is a problem but we are uncertain about the magnitude.
- Treatment-related side effects are fairly common.

Bottom line: Uncertainty about benefits and magnitude of harms

Shared Decision Making

Shared decision making means:

- Encouraging a patient to participate in the decision.
- Helping a patient consider how the evidence fits his values and preferences.

Shared Decision Making for Other Clinical Decisions

- Sigmoidoscopy, colonoscopy, or fecal occult blood test for colorectal cancer screening.
- Metformin and/or lifestyle changes for glucose intolerance.
- Treatments for ischemic heart disease.
- Hormone replacement therapies.

Shared Decision Making

- Shared decision making is the best current answer because:
  - There is evidence that screening may extend men's lives, but the evidence is not conclusive.
  - Some men suffer harms from screening.
  - How men weigh potential harms and benefits depends on the individual.
- Our challenge:
  - To find ways to help men make their own decisions.

Cost-benefit of PSA screening

A review of existing studies

Cost-benefit of Screening for Prostate Cancer among Medicare beneficiaries.

- Barry et al, Urology 1995

- An estimated $ 2203 per prostate cancer detected at 60-69 years of age

- Optimistic estimates of treatment benefits (cost per life-year saved):
  - $ 14,200 at age 65
  - $ 25,289 at age 70
  - $ 51,267 at age 75

(Compare with Annual fecal occult blood testing ($35,054) & Mammography ($23,212 - $27,983))

Cost-benefit of Screening for Prostate Cancer among Medicare beneficiaries.
- Barry et al, Urology 1995

- Pessimistic estimates of treatment benefits (cost per life-year saved):
  - $ 42,590 at age 65 years
  - $ 177,094 at age 75 years

- Based on existing literature, there is a lack of evidence on cost-benefits of routine PSA screening

Screening “High-Risk” groups

What do we know?

Targeted screening

- Men 50-69 years of age are more likely to benefit at a reasonable cost.

  - Coley et al. Ann. of Int. Med. 1997

- Paucity of evidence for screening AA men and men with first-degree relatives.

- Screening high-risk groups – improves positive predictive value

Premature deaths due to Prostate Cancer: The Role of Diagnosis and Treatment

Appathurai Balamurugan MD, MPH
S William Ross MD
Chris Fisher, BS
Jim Files, BS

Arkansas Central Cancer Registry

Figure 1. Prostate cancer deaths in Arkansas and in US

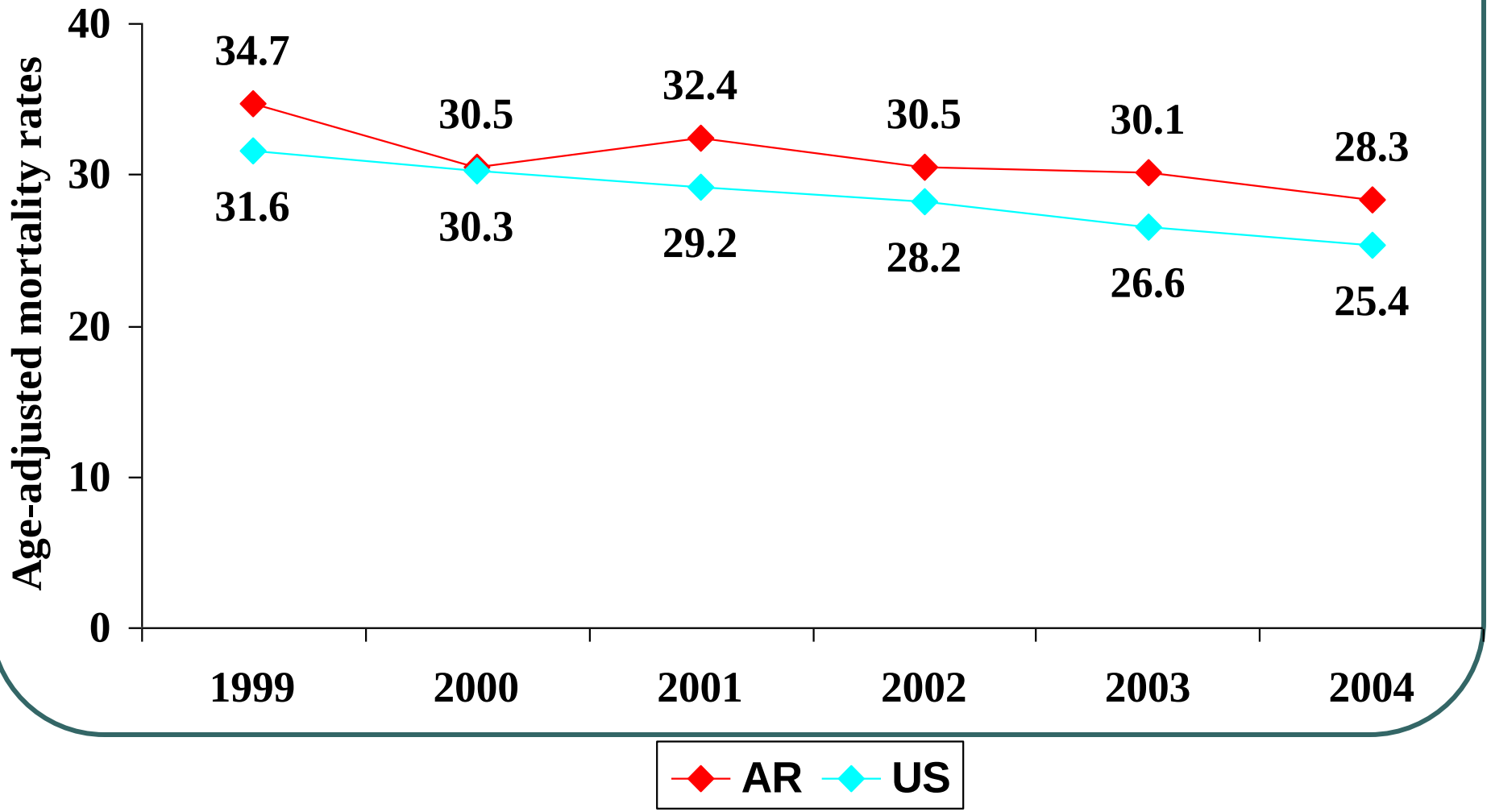
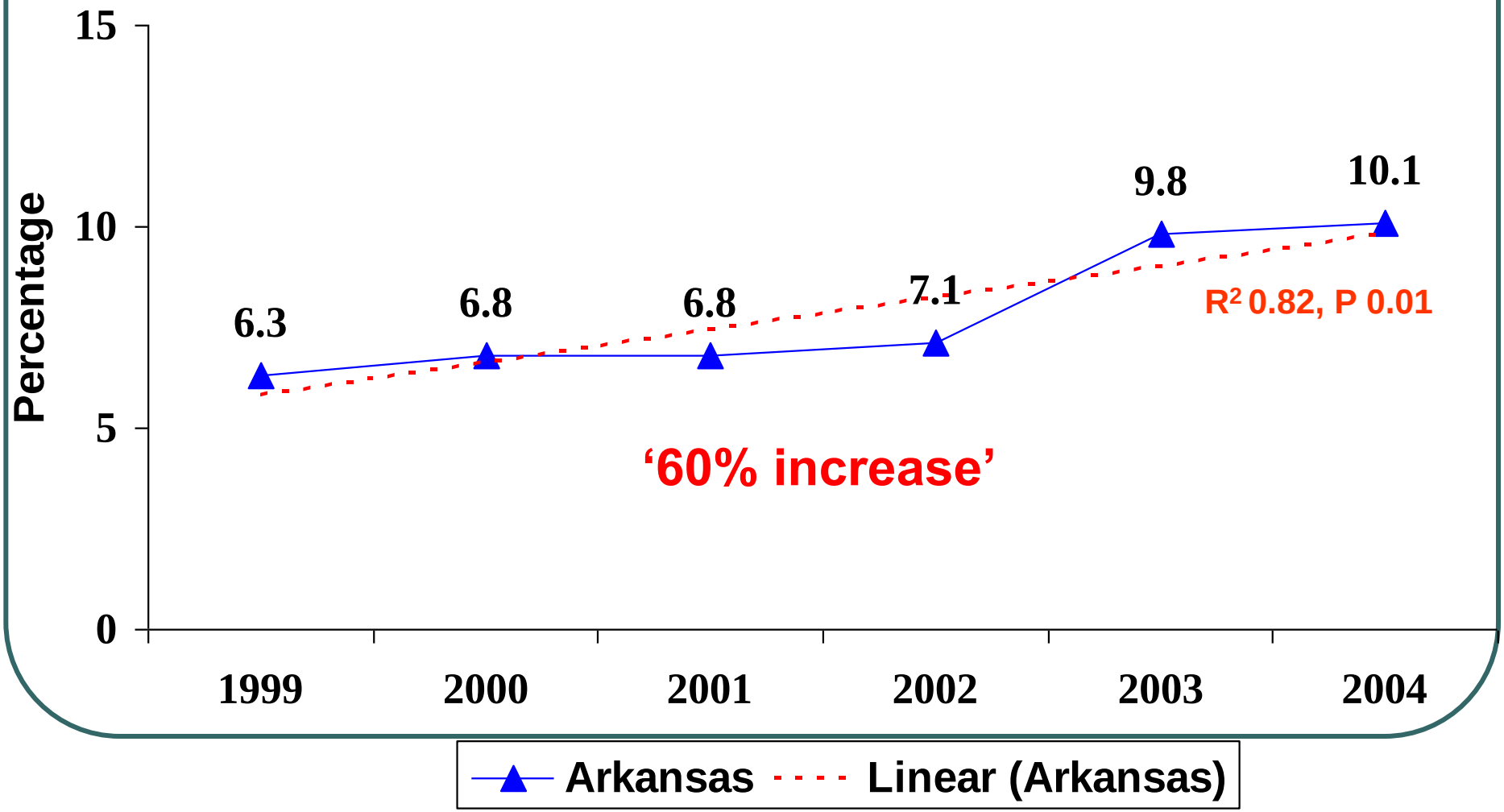


Figure 2. Deaths due to Prostate cancer among adults < 65 years of age, in Arkansas



Premature deaths & YPLL

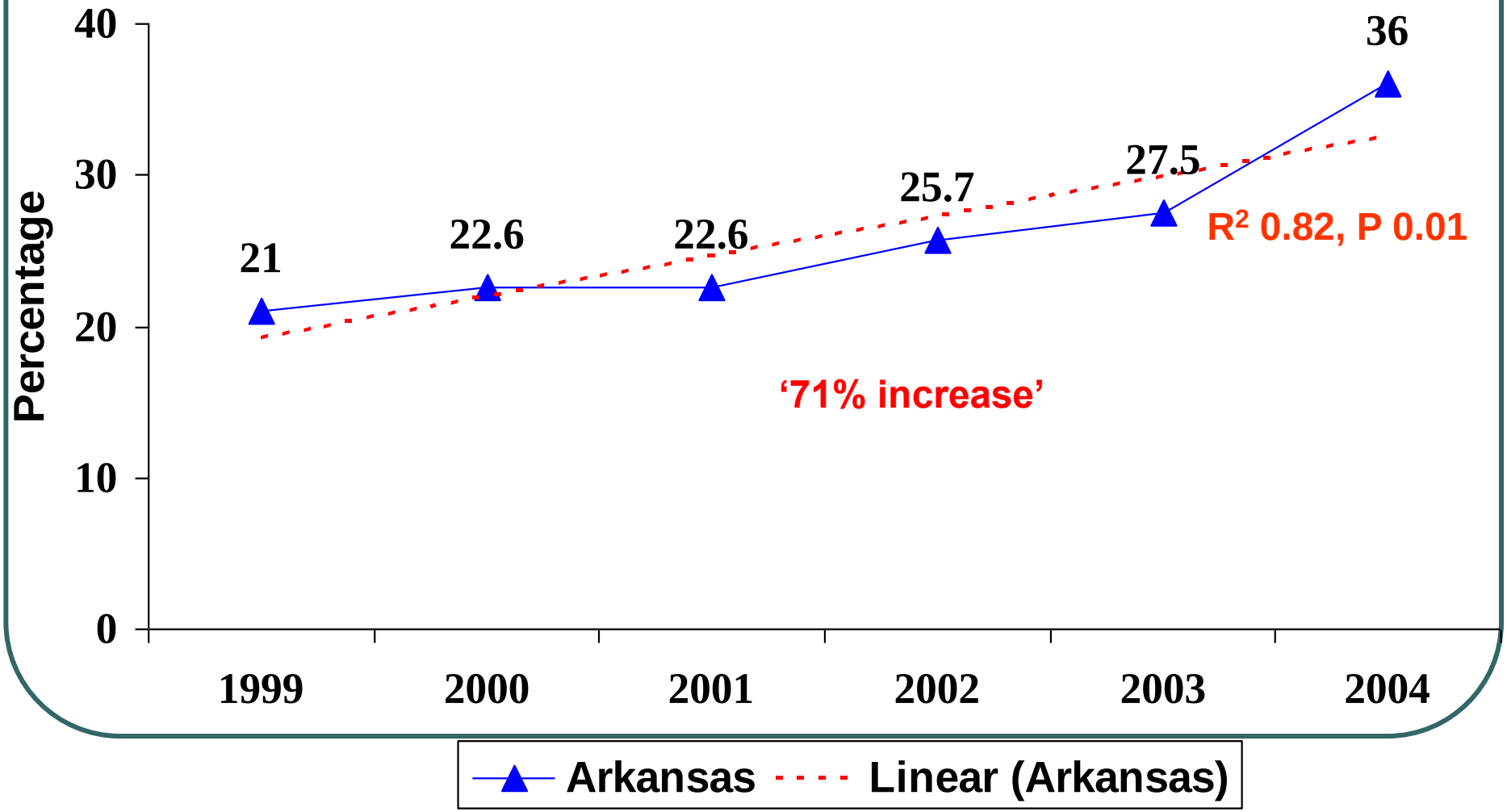
- Deaths among adults younger than 65 years of age (working-age adults) is defined as ‘Premature deaths’.

- Years of Potential Life Lost (YPLL) is the measure used to asses the impact of premature deaths.

More Premature deaths can be due to:

- More new cases of prostate cancers < 65 years of age
- Can it be explained by any other reason?

Figure 3. New cases of Prostate cancer among adults < 65 years of age in Arkansas



Implications

- Studies have found that men diagnosed with prostate cancer in 50s were more likely (60%) to die prematurely.

- Identifying their characteristics and fostering early diagnosis and appropriate treatment could prevent the premature deaths due to prostate cancer.

Objectives of our formative study

- To study the demographic and disease-specific characteristics of adults younger than 65 years of age, who died during the period 1999-2004 due to prostate cancer

Methods

- Calculate YPLL for premature deaths due to Prostate cancer
- We linked the death records of adults who died due to prostate cancer during the period 1999-2004 to the incidence data collected at the Arkansas Central Cancer Registry.
- Compare the characteristics of those died due to prostate cancer < 65 years of age to those died due to prostate cancer 65 years and older

Methods

- Univariate Analysis
- Bivariate Analysis – Chi-sqare
- Multivariate Logistic regression model
  - Backward elimination and Stepwise regression

List of variables used in the model

- *Dependent variable* - Deaths due to prostate cancer

- *Independent Variables* - Age at diagnosis, Race, Family History, SEER Summary stage, Histology, Treatment

Results
Years of Potential Life Lost (YPLL)

- Number of deaths due to prostate cancer <65 years in Arkansas (99-04) = 108
- Range = 43-64 years of age
- YPLL = 661 (Sum of (64.5 – X (decedent's age in years))
- YPLL rate per 100,000 people per year = 9.5

Results summarized

- 11.4 % (N=108) of people who died due to prostate cancer, died prematurely.

- Findings from unadjusted bivariate analysis showed that:
  Significantly higher proportion of those
  - Diagnosed in the 40-59 age group (p=0.000),
  - With family history (p=0.031),
  - With a regional or distant metastases (p=0.000), and
  - Who received 2 or 3 forms of treatment (p=0.007)

  were likely to have died prematurely.

- There were no significant differences by race or histology.

Results contd.

- After adjusting for the covariates in the multivariate model:

  - Those diagnose 60 years and older were less likely to die prematurely (OR=0.002, 95% CI 0.001, 0.008).

  - Those with a distant metastases at diagnosis were more likely to die prematurely (OR=3.990, 95% CI 1.659, 9.595)

  - Race or histology was not found to be significant.

Limitations

- 46% case ascertainment rate (951/2063)
- Selection bias
- Missing data – Screening results, family history

Conclusions

- In spite of the limitations, our formative study provides some insight for future research

- Epidemiologic profiling of those who die prematurely due to prostate cancer will assist fostering preventive measures and avert deaths.

Signs of Hope..

- Screening - PSA Velocity
- Treatment – Research funding
- Prevention - Provenge

Synopsis of Men's Health

- Routine PSA screening – evidence insufficient
- Targeted screening – promises on the horizon
- At the least, Men need to educated about the risk factors of prostate cancer, risks and benefits of screening and treatment.
- Promote shared decision making process among Physicians on prostate cancer which kills 1 Arkansan every day!

Myth

A cat has nine lives..